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AN ANALYSIS OF THE FACTORS AFFECTING THE CAREER ORIENTATION OF JUNIOR URL NAVAL OFFICERS

by

Raymond J. Ashcraft

June 1987

Thesis Advisor: George W. Thomas

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An Analysis of the Factors Affecting the Career Orientation of Junior URL Naval Officers

by

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Lieutenant Commander, United States Navy
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Submitted in partial fulfillment of the requirements for the degree of

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from the

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June 1987

ABSTRACT

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I. INTRODUCTION

The United States Navy is tasked, within the context of national defense, to maintain a force of capable, operationally ready surface ships, aircraft and submarines with the ability to endure and prevail in sustained combat operations, whenever and wherever required. Apart from the physical hardware and support systems implicit in this mission statement, the most crucial factor in performing this tasking is the Navy's ability to maintain a professional, highly-trained personnel force of the proper size and occupational composition. The retention of qualified, eligible personnel at all levels is a vital factor in producing the required force levels to ensure a formidable national defense posture.

This thesis will focus specifically on the retention of junior naval officers of the unrestricted line (URL) with operational warfare designators (surface, submarine and aviation), who are serving within their initial period of obligated service. These officer communities are directly responsible for the operation, maintenance, and combat readiness of the Navy's surface ships, aircraft, and submarines. The continuing evolution of technologically-complex sensors, weapons and other electronic systems requires these officers to undergo

increasingly more detailed and more costly initial and follow-on specific training. This increased training is required for such officers to intelligently oversee the operation and maintenance of these systems and supervise the enlisted personnel who perform these tasks. Thus, as officer training costs increase, the cost of replacing these officers also increases. Therefore, the Navy must be able to predict, to a reasonable degree, the retention levels of its officer corps in order to most effectively utilize its personnel funds and maintain combat readiness.

This thesis will investigate the factors which influence the career orientation behavior of junior URL naval officers in the operational warfare communities, and will construct a statistical model which utilizes these factors to determine the relative importance of such factors to career orientation. The data for estimating the statistical model are taken from the 1985 DOD Survey of Officer and Enlisted Personnel. Responses of naval officers to questions posed in the survey will be analyzed within the context of previous research conducted in the areas of civilian and military turnover.

The research conducted for this thesis should prove valuable to Navy policy makers tasked with retaining the appropriate force mix of officers. By identifying the factors which contribute to the initial and subsequent career decisions of such officers, and determining their

relative importance, an increase in the ability to manage the retention of junior URL officers should result.

A. BACKGROUND

The factors which influence naval officers to leave or stay in the service vary widely from satisfaction with specific aspects of military life to the opportunity to command. The reasons for decisions to leave the service are not necessarily the opposite of the reasons given by officers for staying in the service. Table 1 lists, in priority order, the top ten reasons for leaving the Navy, as gleaned from 1986 separation questionnaires. (Taken from CNO Memorandum 1040 serial 136D21/6U377823 of 9 January 1987). Table 2 lists the reasons given in a 1986 officer retention survey (Taken from CNO Memorandum 1040 serial 136D21/6u377823 of 9 January 1987). These reasons provided an initial focus for this study, and formed the foundation for the research required to address the career orientation of junior naval officers.

Heading the list of "dissatifiers" on the separation questionnaires was the excessive amount of family separation. Absent from this list were the levels of pay and allowances, whereas the ability to obtain good pay, allowances, and military retirement were included in the reasons for retention. These responses may reflect the continuing effects of the substantial increases in both

TABLE 1

REASONS FOR OFFICER SEPARATIONS, 1986

Ranking	Description
1	Too much family separation
2	Too much crisis management
3	Unable to sufficiently plan and control career
4	Suppressed initiative, creativity, and professional stimulation
5	Insufficient managerial/leadership qualities of seniors
6	Lack of recognition for accomplishment/self-respect
7	Problems with assignment/detailing
8	Possible erosion of benefits
9	Job dissatisfaction
10	Poor utilization of abilities, skills, and education

SOURCE: OP-136D21, 1987.

regular military compensation, and special pays, such as sea and flight pay, which occurred in the early 1980s.

The Navy routinely monitors the retention of its officer corps as a means for predicting and planning for anticipated shortfalls in critical occupational specialties. Table 3 provides the retention rates for junior officers in the operational warfare communities for the period 1980 through 1986. The figures provided by OP-136D2 in Table 3 are based

TABLE 2

REASONS FOR OFFICER RETENTION, 1986

Ranking	Description
1	To perform meaningful and challenging work
2	To obtain positions of responsibility and authority
3	To use abilities, skills, and education
4	Opportunity to serve my country
5	To pursue a career in a given specialty/designator
6	To obtain a military retirement
7	To obtain good pay and allowances
8	Because there is opportunity to show initiative
9	To enjoy Navy lifestyle/Esprit de Corps
10	For opportunity to command

SOURCE: OP-136D21, 1987.

on a comparison of officer strength at two points in time; one year prior to the completion of the minimum service requirement (MSR), and two years beyond MSR. Although the total retention rates for this group have risen substantially since 1980, officers in three of the four warfare areas are still leaving the Navy at a rate in excess of 50 percent. The differences between the warfare areas

TABLE 3

OPERATIONAL WARFARE COMMUNITY
OFFICER RETENTION RATES (%)

Year	Surface	Submarine	Pilot	NFO	Total
1980	34	36	30	71	43
1981	42	33	42	65	46
1982	43	39	49	73	51
1983	45	43	58	74	55
1984	50	47	56	81	59
1985	47	48	53	85	58
1986	49	43	46	74	53

SOURCE: LT Kresek, OP-136D2, 1987.

suggest that there may be different factors which influence the career intentions of each.

B. PURPOSE

The Navy is required to manage its officer manpower levels using pay and personnel policies over which it exercises very little control. Changes to many of these policies require congressional approval. Nevertheless, it is incumbent upon manpower planners to remain cognizant of the current factors which influence the career decisions of its officer corps, so that adequate levels can be planned for and maintained in support of national defense objectives.

The purpose of this study is to identify the most influential factors in the junior naval officer career orientation process, and to build a statistical model which

utilizes these factors in order to determine their relative importance to career intentions of these officers. Short term intentions will be defined as the officer's affinity for staying beyond his current obligation, and long term career orientation, as the expressed feelings about staying for twenty or more years.

The identification of career orientation factors and development of a model which shows their relative importance in the junior officer career decision should provide Navy policy makers with information useful in justifying changes in pay and personnel policies to maintain the required officer personnel levels in the operational warfare community.

II. REVIEW OF LITERATURE

A. GENERAL TURNOVER RESEARCH

Over the past few decades, the study of employee turnover has become the focus of an increasing amount of research. Although turnover can be a healthy part of an organization's natural evolution, unexpected or unpredictable turnover can cause acute shortages of trained personnel in areas that managers can ill-afford. Therefore, considerable effort has been devoted to finding factors that are both measurable and predictive of turnover behavior.

One of the most comprehensive reviews of recent turnover literature was conducted by Mobley, Griffith, Hand, and Meglino in 1979. They state that the factors which best predict turnover are age, tenure, job content, intention to remain on the job, and organizational commitment. These factors were found to have a negative correlation with turnover. Thus, the higher the values of these factors, the less the chance the individual will quit. However, even with the knowledge of the values of all these factors, only about twenty percent of the variance in turnover can be explained [Mobley, et al., 1979].

Although significant strides have been made in turnover research, Mobley et al., (1979) lists four reasons for shortfalls in understanding turnover behavior:

- lack of a clear conceptual model
- failure to consider available job alternatives
- insufficient multivariate research
- infrequent longitudinal studies.

Further, it is important to make a distinction between the concepts of satisfaction (which is present-oriented), and attraction or expected utility of both the current job and available alternatives (which are future-oriented). Because turnover is generally considered to be an individual choice behavior, a conceptual model which applies aggregate level research to the individual turnover decision is a distinct help in understanding the turnover process [Mobley, et al., 1979]. Figure 1 is such a model, which shows the interrelationships of organizational, individual, and economic factors influencing turnover behavior.

Mobley, Horner, and Hollingsworth (1978) found, using a sample of 203 hospital employees, that intention to quit and intention to search for an alternative job were both consistently and positively related to actual turnover. Other studies, such as Porter, Crampon, and Smith (1976), explored the role of organizational commitment in the turnover process. Results indicated, as expected, that the greater the level of commitment to the organization, the less the chance an individual will quit.

Ilgen and Seely (1974), in a survey of new West Point cadets, concluded that the expectations of those who had

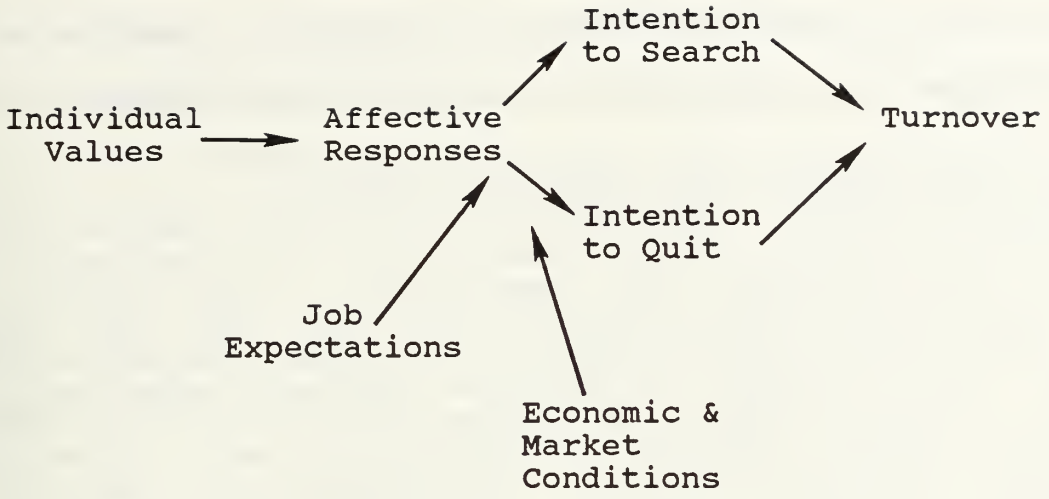


Figure 1. Mobley et al., (1979) Model of Employee Turnover

received prior realistic information regarding the academy's programs found that their expectations were more nearly met. Thus, better informed personnel had lower turnover than those who received no specific prior information.

Several multivariate models have been investigated in the recent past in attempts to explain the variation in turnover across individuals. Mobley et al., (1978) found that, of seven explanatory variables utilized (intention to quit, intention to search, thinking of quitting, probability of finding an acceptable alternative, age, tenure, and satisfaction), intention to quit produced the only significant regression coefficient in explaining the turnover of hospital employees. Waters, Roach, and Waters (1976) conducted a study of the turnover of insurance company clerical employees. They discovered that intentions, Job Descriptive Index (JDI) work scale, and

tenure were the only significant variables in a model which also included age, other JDI scales, and marital status.

B. MILITARY RETENTION AND ATTRITION RESEARCH

Military research in the areas of officer retention and attrition has increased significantly over the past two decades. This increase in interest has been generated by periods of severe shortages of officers in one or more of the Navy operational warfare specialty areas (surface, submarine and aviation). In attempts to alleviate such shortages, many studies have been conducted to develop models which more accurately predict the career decisions of these officers. The rationale of this methodology is to estimate future retention levels and alter military policy to control retention rates. The following is a review of selected works conducted in this area.

Fitzgerald (1964) applied the concept of utility theory to the problem of junior officer retention in the U.S. Navy. He proposed that, by studying and quantifying the degree of utility or usefulness junior officers felt for different career decisions, a better understanding of the retention process could be attained. Fitzgerald further highlighted the importance of retention from the standpoint of monetary costs. He pointed out that, in 1961, the Chief of Bureau of Naval Personnel issued a personal letter to all flag officers and commanding officers which detailed a continuing shortage of approximately 4000 Unrestricted Line (URL)

lieutenants. Enjoining a renewed commitment to officer retention efforts, the letter cited that the estimated total replacement costs for the nearly 5000 junior officers who left the Navy each year was on the order of $150 million.

Lopez (1973) investigated the retention of junior surface warfare officers. He found that some of the most important factors which helped explain differences in career intentions were compensation (including sea pay), amount of time separated from family, promotion opportunity, and anticipation of being selected for command-at-sea. Lopez recommended that sea pay be increased substantially, that initial training for all surface ensigns be conducted at the Surface Warfare Officers School, and that more standardized and specific requirements be mandated for the achievement of the surface warfare designation. All of these recommendations have subsequently been adopted as Navy policy.

Holzbach, Morrison, and Mohr (1979) studied the effect of the assignment process on surface warfare junior officer retention. Results indicated that improvements in several aspects of the detailing process would have a positive effect on retention. Some of the recommendations given (all of which have been implemented), are:

- increase the amount of contact between the detailer and junior officers (more detailers were added and field trips to SWO population centers were increased)
- strive to get "hardcopy" orders to the officers not later that four months prior to transfer

- provide better availability and more frequent distribution of career information publications ("Officer Personnel Newsletter" or "Perspective").

Cook (1979) demonstrated the utility of the Human Resources Management (HRM) survey and a specially constructed Naval Aviation Career (NAC) survey in predicting naval aviator retention. Using discriminant function analysis, he employed twenty-nine variables in the categories of command climate, extrinsic satisfaction, and intrinsic satisfaction to predict whether the naval aviators in the sample would stay in the Navy or resign. Cook concluded that, by augmenting the HRM survey with several supplementary questions, his model could be utilized to predict unit retention rates from twelve to eighteen months in the future. The cost of implementing the required HRM survey changes, according to Cook, would be less than the cost of replacing one naval aviator.

Kleinman and Zuhoski (1980) conducted a similar study of pilot attrition, but looked only at economic remedies for those pilots in their first five years beyond initial obligation. They found that pilot retention was responsive to changes in commercial airline employment opportunities and differences in military and commercial pilot pay. They recommended that, to increase pilot retention, bonuses should be awarded, targeted at the low retention groups. This remedy was evaluated to be more effective and less costly than an increase in Aviation Career Incentive Pay

(ACIP), sixty percent of which was targeted at those within their initial obligation.

Schmidt (1982) conducted a comprehensive study of the factors which influence the career orientation of junior naval officers. He utilized data from letters of resignation received by the Naval Military Personnel Command (NMPC-312c), and information from exit interviews provided by OP-136D2a to provide initial focus on known reasons for officer resignations. A multivariate regression model to predict career orientation was then constructed using officer responses contained in the 1978 DOD Survey of Officer and Enlisted Personnel. URL officers with operational warfare designators between their second and tenth year of service were studied. Such officers were grouped according to current length of service and amount of obligated service remaining. The aggregate linear regression model for the entire group being studied included the following explanatory variables:

- satisfaction with military life
- future pay and retirement expectations
- satisfaction with intrinsic and extrinsic aspects of Navy life
- family benefits and security
- age
- commissioning source
- spouse's earnings.

These variables, taken as a group, explained about thirty-five percent of the variation in career intentions. Schmidt's recommendations included the following:

- apply the model across services, on a service-specific basis, and on a military occupational specialty (MOS) basis
- conduct more research on the effect that commissioning source has on career intentions
- remove the issue of military compensation from the annual debate over the defense budget. A four-year compensation plan with a quadrennial review would add stability to the previously tenuous nature of the military compensation package
- decide on the appropriate retirement benefits, put them into effect and do not change them.

Schmidt postulated that a significant portion of the dissatisfaction military personnel and their families feel is due to the uncertainty of the constantly changing provisions of medical, retirement, and other benefits. Changes in benefits are made so frequently that many personnel are skeptical of whether such programs will be in place and worthwhile when they are eligible to take advantage of them.

Several other studies utilized the 1978 DOD Survey of Officer and Enlisted Personnel to investigate topics related to military career orientation and turnover. Siggerud (1981) addressed intended retention behavior of Navy enlisted personnel, specifically focusing on social, environmental, and economic factors. Those found to have the greatest power in explaining differences in retention

intention were military-to-civilian pay ratio, type of duty station (sea or shore), and family considerations. The relative importance of these factors differed significantly by occupational specialty.

Kreutner (1982) researched social, economic, and behavioral differences of non-prior service (NPS) enlisted personnel based on their age at service entry. He concluded that, for Navy personnel, as entry age increased, average Armed Forces Qualification Test (AFQT) scores increased and first term attrition decreased.

Christensen (1983) developed a voluntary turnover model which examined the reenlistment intentions of first term Navy enlisted personnel who were within one year of the end of their obligated service. Stepwise regression of candidate variables yielded three significant factors for predicting reenlistment intention: perception that the member's family would be better off with the member in a civilian job, satisfaction with military life, and feelings about current job location.

Lensing (1984) investigated the effect that perception of alternative job factors had on the career orientation of military Nurse Corps officers. Her findings indicated that such factors were different between those in their initial and subsequent obligation periods. Having a say in their jobs, training opportunities, work schedules, and degree of

interesting work were significant in predicting the career orientation of military nurses.

Cain (1982) investigated socioeconomic and personal variables affecting the retention of male caucasian DOD physicians with between four and ten years of service. He felt that such a period would include the career decision point for most medical corps officers. Cain found that important determinants of the retention of these medical officers were their assessments that military compensation was too low, location transfers too frequent, and specific military job environmental conditions inferior, compared to those of similar civilian jobs. In a related thesis, Menifee (1984) conducted a study of the factors affecting the organizational commitment of military physicians who were beyond their initial obligation. Utilizing intended years of service as a measure of organizational commitment, he found that variables which compared military and civilian job alternatives were the best predictors of career intentions of military physicians.

III. RESEARCH OBJECTIVES, METHODOLOGY AND DATA DESCRIPTION

A. RESEARCH OBJECTIVES

The major objectives of this thesis are to identify factors which influence the career orientation of junior URL naval officers and to test a model which can explain differences in career orientation of these officers. The model can then be used by manpower policy makers in determining policy changes aimed at maintaining optimal URL officer manning levels. The research questions of interest include:

- What relative importance do biodemographic, tenure/time-related, cognitive/affective orientation, perception of external job opportunities, and family financial resources factors have on the career orientation of junior URL naval officers within their minimum service requirement (MSR)?
- How do career orientation factors differ between occupational (warfare specialty) areas?

The officers being analyzed in this study were separated into four operational warfare designator categories: surface warfare officers (SWO), submarine warfare officers (SUB), pilots, and naval flight officers (NFO). Within these categories, the officers were grouped according to length of service (LOS), and length of time remaining in their MSR.

Recognizing that significant time is required before newly-commissioned officers in any warfare area complete initial training and have sufficient time in an operational

environment to make meaningful career projections, officers with less than eighteen months active duty were not considered in this study. Further, because the focus of this thesis is on those officers within their MSR, those beyond that point and those with more than seven-and-one-half years active duty were also not considered in this study. The subsequent section on occupational groupings presents a detailed breakdown of the categories and groups of individuals being studied.

B. METHODOLOGY

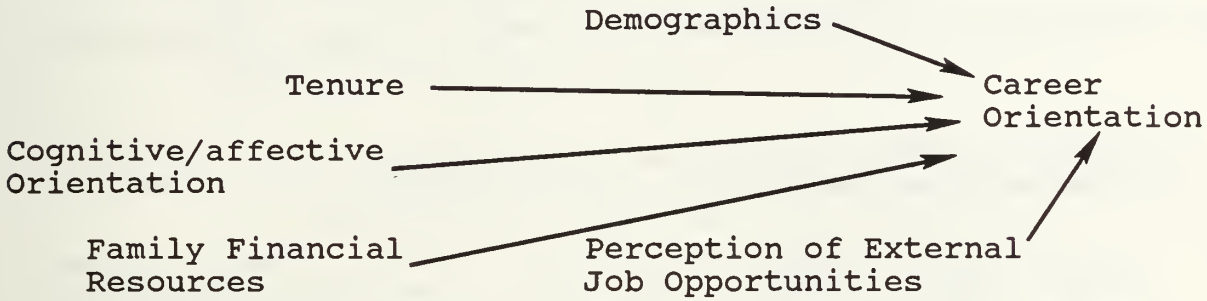
Several studies of civilian and military turnover have noted the consistent relationship between an individual's stated intention to quit and actual turnover behavior. Mobley et al. (1979) expounds on this relationship.

> . . . The best predictor of turnover behavior should be intention to quit. . . . The relationship between turnover and intention should be stronger the more specific the intention statement and the closer in time the measurement of the intention and the behavior.

Thus, this thesis will assume that career intention is closely related to turnover behavior, such that an explanatory model of career intentions will be taken to be a good approximation to an explanatory model of actual turnover.

The military retention and attrition research reviewed in the last chapter identified several factors influencing turnover, but few studies organized the potential determinants of turnover into a conceptual model that could facilitate an understanding of the turnover process. Schmidt

(1982), building on the models of Mobley et al. (1979) and Arnold and Feldman (1982), did construct and test a model of career orientation of junior URL naval officers with operational warfare designators (Figure 2).



Source: Schmidt (1982)

Figure 2. Hypothesized Model of Career Orientation Process

Because of the similarities between the 1978 DOD Survey used by Schmidt and the 1985 DOD Survey being used in this thesis, and the common focus of the two theses on the career orientation of junior naval officers, this thesis will investigate a proposed conceptual model which is a modified version of the Schmidt (1982) model.

Further, I will employ multivariate regression analysis of the hypothesized determinants of job turnover to formulate and evaluate a model which attempts to explain differences in career orientation of the officers being studied. Factor analysis will be used as a variable reduction technique, where appropriate.

1. Conceptual Model of Career Orientation

Figure 3 proposes a conceptual model which shows the hypothesized relationship between the determinants of job turnover and career orientation. The variables in my conceptual model were grouped into essentially the same categories of variables used by Schmidt. These categories are:

1. Biodemographic--Individual information, such as age, race, and education.

2. Tenure/Time-related--Variables which measure the respondent's length of active service, paygrade, amount of obligated service remaining, and number of months of sea duty.

3. Cognitive/Affective Orientation--Variables which measure the officer's perception of, and degree of satisfaction with the intrinsic and extrinsic aspects of the current military job, and family-related factors.

4. Perception of External Job Opportunities--Variables which assess the officer's perceived alternatives to military service.

5. Family Financial Resources--Variables used to measure the family's financial situation and the degree to which spouse's income contributes to total family income.

The only substantial changes from Schmidt's model are the indication of relationships between the cognitive/affective category, and the perceptions of external job opportunities and family financial resources categories. This was done because it seems reasonable to assume that a "carryover" effect may exist between these categories. For example, if an officer is dissatisfied with several aspects of his military job, this fact may adversely

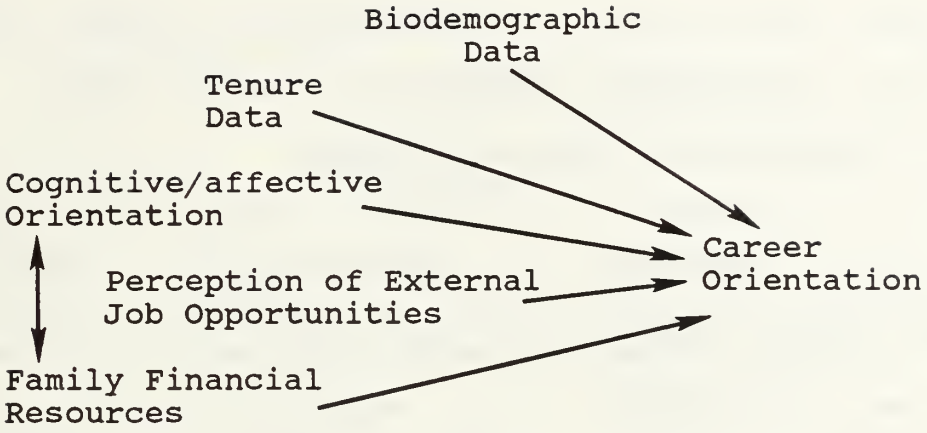


Figure 3. Conceptual Model of Career Orientation for Junior Naval Officers within their MSR

affect his family's perceptions of military life, and might possibly inflate the officer's perception of his external job opportunities. The level of family financial resources may also affect satisfaction with the military environment and perception of civilian job opportunities. Thus, the net effect of each of the three interrelated categories on career orientation may well be influenced by the assessed perceptions and degree of satisfaction indicated in the other two categories.

It should be noted that the methodology used in my study is not causal modeling, which would detect the differences in the relationship between affective variables in my model vis-a-vis Schmidt's model. The multivariate regression techniques look at the relationship between the set of explanatory variables and intended turnover. The detection of causal "carryover" effects of affective variables would require a much more complex estimation

technique, such as path analysis (Babbie, 1979), which is beyond the scope of this thesis.

2. Measures of Career Orientation

Two measures of career orientation will be investigated. Both will be based on responses to the survey question, "When you finally leave the military, how many total years of service do you expect to have"? First, a measure of short-term career orientation will be used. The intention of interest will be whether the respondents intend to stay in the Navy beyond their current obligation. Second, a measure of long-term career intentions will be devised by recoding the "intended years of service" variable to determine whether the naval officers in the survey sample intend to remain in the service for twenty or more years.

Table 4 shows the categories into which personnel will be placed, based on expressed short and long-term career intentions. These expressed intentions, as noted earlier, should be good indications of actual retention or attrition behavior. The twenty-year point will be used because this is the minimum length of service (LOS) required for service members to retire and begin receiving appropriate retirement benefits.

C. DATA

The process depicted in the conceptual model will be evaluated utlizing the responses submitted by naval

TABLE 4

SHORT AND LONG-TERM CAREER INTENTIONS

	Categories	
Timeframe	Non-careerist	Careerist
Short-term	Intends to leave when obligation expires.	Intends to remain beyond current obligation.
Long-term	Intends to leave prior to 20 years of service.	Intends to remain for 20 or more years of service.

Source: Author.

officers to the questions posed in the 1985 DOD Survey of Officer and Enlisted Personnel. This survey was conducted for the Office of the Assistant Secretary of Defense (Force Management and Personnel) (OASD (FM&P)) by the Defense Manpower Data Center (DMDC).

The Rand Corporation conducted a DOD survey project for the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics (OASD (MRA&L)) between 1978 and 1982. The objectives of this project were:

- To provide policy-sensitive information about a military life-cycle: enlistment decisions, career orientation, responses to policies that affect military personnel and their households, and decisions to leave the military.
- To develop a capability to collect data related to specific topics of policy interest.
- To develop mechanisms for DOD participation in studies of civilian populations that are of interest to military policy makers.

- To provide technical support and assistance to data collection activities of operational interest to DOD.

The project designed and conducted three surveys, each focusing on a different stage of a military life cycle. These were:

- The 1979 DOD Survey of Personnel Entering Military service.
- The 1978 DOD Survey of Officers and Enlisted Personnel.
- The 1979 Reserve Force Studies Surveys.

The 1985 DOD Survey, though not a part of this research project, is a follow-on study utilizing many improvements gleaned from the administering of its predecessors [Doering, 1982].

1. Purpose of the 1985 DOD Survey of Officer and Enlisted Personnel

Two specific purposes for which the 1985 Survey was administered were to assess the effects of family issues on retention and to evaluate the impact of several personnel policies which had been implemented within the past few years. In addition to the survey of service members, a separate survey of military spouses was conducted to gain insight into family issues not previously addressed in past surveys. Documentation for the conduct of the 1985 DOD Survey is contained in the User's Manual and Codebook [Doering et al., 1986].

a. Comparison of the 1978 and 1985 DOD Surveys of Officer and Enlisted Personnel

The 1978 DOD survey was sponsored by OASD (MRA&L), and was conducted by the RAND Corporation. This survey was administered to personnel in four questionnaire variants. Forms one and three addressed the effects of economic issues on officer and enlisted personnel, respectively. Forms two and four investigated quality-of-life issues for the same respective groups of personnel. Results of the 1978 survey could be used to assess the perceptions of service members on issues such as retirement benefits, pay, promotion opportunity, retention, and attitudinal factors of military personnel toward their environment [Schmidt, 1982].

The User's Manual and Codebook [Doering et al., 1986] emphasizes the importance of addressing statistical and methodological differences when attempting to compare data from the two surveys. It was envisioned that differences in stratification, sample size, and selection probabilities would impact precision, but would still yield unbiased estimates for the same parameters and populations, and would permit comparisons between 1978 and 1985 respondents. Unfortunately, since some important questions which were asked on the 1978 Survey were not included in the 1985 Survey, limitations exist on the ability to test similar models of career orientation using both the 1978 and 1985 surveys. Thus, valid trend or cross-sectional estimates

of career orientation models are not possible. For example, the 1985 Survey, unlike its predecessor, contains no specific questions which ask for a comparison of current military job conditions and pay issues with those of the perceived job alternatives to military service.

b. Description of the Data Contained in the 1985 Survey

Questions in the 1985 Survey covered a wide variety of topics, including biodemographic data, tenure and time-related data, cognitive/affective orientation factors, perceptions of external job opportunities, and family financial resources factors. The intention of the survey design was to provide data that could be utilized to study one or more of the following topics:

- Response of military personnel to changes in compensation and benefits.
- Projected behavior in response to possible changes in personnel management practices.
- Factors affecting readiness and retention.
- Differences in career orientation, attitudes, and experiences for different subgroups of personnel.
- Demographic, household, familial, and other characteristics of military personnel.
- Impact of military policies on aspects of military and family life.
- Family well-being and adequacy of family service programs.

Table 5 lists the nine major areas of the Member Survey questionnaire administered to the officers being studied.

TABLE 5

MAJOR SECTIONS OF THE MEMBER SURVEY QUESTIONNAIRE

I. Military Information:

Paygrade, procurement source, and obligated service remaining.

II. Present and Past Locations:

Length of stay and problems encountered at the previous and present duty stations.

III. Reenlistment/Career Intent:

Expected years of service, and probable behavior under different personnel management options.

IV. Individual and Family Characteristics:

Sex, age, marital status, and educational attainment.

V. Dependents:

Number and ages of dependents; whether or not dependents were handicapped.

VI. Military Compensation, Benefits, and Programs:

Benefits being received, and level of satisfaction with various family programs.

VII and VIII. Civilian Labor Force Experience, and Family Resources:

Household's civilian work experience and earnings.

IX. Military Life:

Attitudes toward pay, allowances, interpersonal environment, and benefits.

Source: User's Manual and Codebook [Doering et al., 1986]

2. Survey Sample

The basic sample stratification variable for the 1985 DOD Survey was enlisted/officer status, and branch of service. Within each service, officer samples were stratified by gender. Officers, females, and Marine Corps personnel were sampled at a higher rate than others in order to permit detailed analyses of these groups [Doering et al., 1986]. Table 6 shows officer sample information by stratification cell.

TABLE 6

SAMPLE INFORMATION BY STRATIFICATION CELL FOR OFFICER PERSONNEL

	Service				
Sex	Army	Navy	Marine Corps	Air Force	DOD
Male	5868	3736	3940	5668	19,212
Female	2044	1310	628	2238	6220
Total	7912	5046	4568	7906	25,432

Source: User's Manual and Codebook [Doering et al., 1986]

The final sample sizes presented in Table 6 were based on a compromise between the number of questionnaires needed for detailed analysis of special small populations and budgetary constraints. The population which was sampled consisted of active-duty officers with four or more months LOS who were stationed in the continental United States

(CONUS) or overseas on September 30, 1984. Of the 5046 naval officers in the final sample, 182 were discharged from the Navy between the time samples were selected and when the survey was actually administered. Thus, only 4864 naval officers were "eligible" to complete the survey. Table 7 shows the sample allocation and response rates of these officers.

TABLE 7

SAMPLE ALLOCATION AND RESPONSE RATES OF NAVAL OFFICERS

	Sample Members	Eligible Members	Usable Questionnaires Returned	Returned as % of Eligibles
Male	3736	3593	2933	81.6
Female	1310	1271	1042	82.0
Total	5046	4864	3975	81.7

Source: User's Manual and Codebook [Doering et al., 1986]

3. Occupational Groupings

This thesis will investigate the career orientation process of junior URL naval officers in the operational warfare communities with between eighteen months and seven-and-one-half years of active service, who were serving within their initial period of obligated service. Though there is no widely accepted, standard definition of the term "initial obligation", it is generally taken to include the

obligation incurred upon commissioning plus any further obligation incurred due to advanced training (Nuclear Power School or Flight School). Thus, initial obligation encompasses the entire time period from commissioning, to the first opportunity the officer has to voluntarily leave the Navy, regardless of commissioning source or type of advanced training (if any) received. Tables 8 and 9 summarize the commissioning and follow-on obligations for the major commissioning sources for those officers in the operational warfare community.

TABLE 8

OBLIGATIONS OF NAVAL OFFICERS
BY COMMISSIONING SOURCE

Commissioning Source	Obligation upon Commissioning
Naval Academy	5 years
OCS/OTE	3 years
ROTC (regular)	3 years
ROTC (scholarship)	4 years
AOCS	6 years (with 2-year reserve commitment) -or- 4 years (with 6-year reserve commitment)

Source: CDR Smith/LT Biskaduros, OP-114c, 1987

TABLE 9

FOLLOW-ON OBLIGATIONS OF OFFICERS
BY WARFARE AREA

Warfare Area	Follow-on Obligations
SWO (conventional)	None
SWO (nuclear trained)	5 years from completion of Nuclear Power School
SUB	5 years from completion of Nuclear Power School
PILOT (USNA,AOCS or -or- ROTC scholarship) NFO	5 years from designation as a Naval Aviator or Naval Flight Officer
PILOT (ROTC college -or- program) NFO	4 years (with 6 year reserve commitment) -or- 6 years (with no reserve commitment)

Source: CDR Smith/LT Biskaduros, OP-114c, 1987

Officers with less than eighteen months LOS were excluded for the reasons explained in the Research Objectives section. Table 10 lists the operational warfare designator codes of the officers included in this study.

Females, those officers in racial categories other than white, and special warfare/operations personnel will be excluded from analysis due to the small percentages of the operational warfare community they represent. Table 11 shows these percentages by designator area. The rationale for the exclusion of these groups is based on the concern that erroneous conclusions regarding the career orientation of females, non-whites, and special warfare/operations

TABLE 10

OPERATIONAL WARFARE DESIGNATOR CODES
INCLUDED IN THIS STUDY

111X - Qualified Surface Warfare Officer
112X - Qualified Submarine Warfare Officer
116X - Surface Warfare Trainee
117X - Submarine Warfare Trainee
131X - Qualified Pilot (Naval Aviator)
132X - Qualified Naval Flight Officer
137X - Student Naval Flight Officer
139X - Student Naval Aviator

Source: Adapted from Schmidt (1982)

personnel might be reached due to the small number of each in the sample. Finally, those with LOS greater than seven-and-one-half years were not considered because, based on survey responses, this point appears to be the high end of the initial obligation spectrum.

Following the deletion of the groups mentioned above, the sample size for the operational warfare personnel remaining was approximately 430. The Statistical Package for the Social Sciences (SPSSX) was used for all statistical analyses conducted for this study. The statistical weightings applied to the data in the 1985 Survey were removed, and analyses were performed on the raw data cases. Frequency analysis and crosstabulations of responses to key survey questions were conducted as a part of the empirical data analysis to familiarize this

TABLE 11

CROSSTABULATIONS OF WARFARE AREA BY GENDER AND RACE/ETHNIC GROUP

OSSE34

DESIG1	COUNT / ROW PCT / COL PCT	MALE 1.00	FEMALE 2.00	ROW TOTAL
1.00 SWO		141	5	146
		96.6	3.4	29.7
		29.8	27.8	
2.00 SUB		84		84
		100.0		17.1
		17.8		
3.00 SPWAR		8		8
		100.0		1.6
		1.7		
4.00 PILOT		168	8	176
		95.5	4.5	35.8
		35.5	44.4	
5.00 NFO		72	5	77
		93.5	6.5	15.7
		15.2	27.8	
	COLUMN TOTAL	473	18	491
		96.3	3.7	100.0

NUMBER OF MISSING OBSERVATIONS = I

RACE4

DESIG1	COUNT / ROW PCT / COL PCT	BLACK 1.00	HISPANIC 2.00	WHITE 3.00	OTHER 4.00	ROW TOTAL
1.00 SWO		6	3	133	4	146
		4.1	2.1	91.1	2.7	29.7
		50.0	27.3	29.1	36.4	
2.00 SUB		2	3	77	2	84
		2.4	3.6	91.7	2.4	17.1
		16.7	27.3	16.8	18.2	
3.00 SPWAR		1		7		8
		12.5		87.5		1.6
		8.3		1.5		
4.00 PILOT		2	2	168	4	176
		1.1	1.1	95.5	2.3	35.8
		16.7	18.2	36.8	36.4	
5.00 NFO		1	3	72	1	77
		1.3	3.9	93.5	1.3	15.7
		8.3	27.3	15.8	9.1	
	COLUMN TOTAL	12	11	457	11	491
		2.4	2.2	93.1	2.2	100.0

NUMBER OF MISSING OBSERVATIONS = 1

Source: Author.

researcher with the specific characteristics of the personnel in the operational warfare community.

IV. ANALYSIS

A. VARIABLE SELECTION

This section contains descriptions of the survey questions chosen as variables for the multivariate regression model of career orientation. Based on the model described in the previous chapter, fifty-nine potential candidate variables were selected from over 300 total items addressed in the survey.

Where appropriate, composite variables were constructed to combine measures of related attributes. For example, in the cognitive/affective category, factor analysis was employed to reduce the large number of candidate variables by creating a construct to measure a composite level of the servicemember's feelings toward several aspects of military life. The result of these variable reduction techniques was a preliminary model with nineteen variables. The individual variables, constructed variables, and factors to be used in the statistical model are grouped by the categories defined in the methodology section, and are described below. The question numbers of variables taken directly from the survey, and names given to constructed variables and factors are shown in parentheses after the descriptions of each.

1. Biodemographic

The variables in this category describe personal characteristics of the respondents, enabling them to be

placed in similar groups for analysis. Table 12 lists the candidate variables in this category.

TABLE 12

BIODEMOGRAPHIC VARIABLES

Number of Dependents (DEPENDNT)
OCS as commissioning source (OCS)
ROTC as commissioning source (ROTC)
AOCS as commissioning source (AOCS)
Submarine warfare specialty (SUB)
PILOT
Naval Flight Officer (NFO)

Source: Author

Marital status and number of dependents (excluding spouse) were combined into a single variable to determine the service-member's total number of dependents. Schmidt restated a generally accepted hypothesis that, as an officer's family size increases, his perceived freedom to change careers becomes more restricted. Thus, family size may positively influence an officer's expressed career intentions.

OCS, ROTC, and AOCS are dummy variables for commissioning source, and are used to capture career orientation differences of commissioning source using Naval Academy graduates (ACAD) as the base group. Similarly, SUB, PILOT, and NFO are dummy variables used to capture

occupational differences in career orientation for the operational warfare categories of submariners, pilots, and naval flight officers, using surface warfare officers (SWO) as the base group.

Current age was considered as a variable in this category, but was eliminated due to multicollinearity with length of service. Years of education at entry was also considered, but was dropped due to inconsistencies in the way this question was answered. For instance, there were thirty-two academy graduates and ten OCS officers who reported less than a four year college education.

2. Tenure/Time-related Variables

Tenure effects for this model will be based on the variables listed in Table 13.

TABLE 13

TENURE/TIME-RELATED VARIABLES

Paygrade (O5E5)
Length of Active Service (O6E6)
Total Sea Duty (O17E16)
Time Separated from Dependents in Past Year (O69E66)

Source: Author

Along with paygrade and LOS, the amount of sea duty and separation will be investigated to provide some insight as to how the respondent's length of service has been spent.

The literature supports the theory that, as an individual's length of service increases, his relationship with the organization becomes more solidified, and adds to positive career orientation.

3. Perception of External Job Opportunities

The expressed intention to quit was found by Mobley et al., (1978) to be statistically significant in a multivariate regression model used to explain actual turnover. Intention to quit will logically be influenced by the officer's assessment of his alternatives to military service. This assessment will necessarily involve an evaluation (conscious or otherwise), of the relative civilian wage rate and current job opportunities in the appropriate occupational specialty. The variable chosen to reflect respondents' perceptions of external job opportunities will be approximated by responses to the question which asked the probability of finding a good civilian job.

4. Family Financial Resources

Schmidt (1982) stated that approximately 30 percent of the married officers he studied reported that their spouses worked in 1978 and contributed an average of 16 percent to the total family income. Data for the officers being studied in this thesis indicate that 67 percent of the married officers had spouses who worked outside the home for at least part of the year previous to the survey. This

percentage accounted for an average of 20.5 percent of total family income. This dramatic increase between the 1978 and 1985 surveys reflects the continuing rise in the number of dual career military families and in the amount the spouses contribute to overall family income. Additionally, as noted by Schmidt, such officers may be less willing to transfer to a new duty station if their wives have profitable jobs in the current area. Instead, they may choose to leave the Navy, rather than move to a new geographic location and possibly forego the substantial contribution their wives make to total family income. The variables chosen to reflect this information are shown in Table 14.

TABLE 14

FAMILY FINANCIAL RESOURCES VARIABLES

Total Family Income, 1984 (INCOME2)
Spouse's Total Income, 1984 (O99E95)

Source: Author

5. Cognitive/Affective Orientation Variables

In addition to the importance of the actual levels of military pay, allowances, benefits, and other factors, the perceptions of the officer and his family regarding cognitive/affective job factors will heavily influence the career decision.

There were over 100 potential variables in the cognitive/affective orientation category, designed to assess the perception of, and degree of satisfaction with intrinsic and extrinsic aspects of the military job, and family-related factors. Accordingly, this category was further broken down into intrinsic and extrinsic job satisfaction, satisfaction with current location and Navy programs at that location, and satisfaction with family security factors. Factor analysis was used in these categories to reduce the number of candidate variables, without sacrificing a significant amount of their power in explaining differences in career orientation.

Factor analytic techniques allow us to see whether an underlying pattern of relationships exists, such that the data may be rearranged or reduced to a smaller set of common factors or components that may be taken as source variables accounting for the observed interrelations in the data. [Nie et al., 1975]

Specifically, principal component analysis was used to transform the groups of variables in each of the sub-categories within the cognitive/affective area into a new set of composite variables or principal components that are orthogonal, or uncorrelated, with each other. The first principal component can be thought of as the best linear combination of variables which accounts for the most variation in the data. [Nie et al., 1975]

Any factor analysis procedure normally has three distinct steps. First, a correlation matrix of the variables being analyzed is formulated and inspected. The variables must show some degree of correlation with each other in order for factor analysis to be worthwhile. Second, initial factors are extracted, facilitating the exploration of possible data reduction. Third, the factors are rotated to achieve simpler and more-interpretable results. This is possible because there are many statistically equivalent ways to express the dimensions of the same data. Orthogonal factors were achieved by using the varimax rotation technique. [Nie et al., 1975]

The following section describes the potential cognitive/affective variables used in the factor analysis procedure, the factors which were generated, and the level of importance of each of the variables within those factors.

a. Intrinsic Job Satisfaction

The variables chosen for this section consisted of responses to similar survey questions which directed respondents to indicate their level of satisfaction with the characteristics or aspects of military life shown in Table 15. The SPSSX factor program extracted one factor, which accounts for 41.9% of the variation in the data. The factor score (FSCORE) coefficients are also shown in Table 15, and indicate the relative weights for each variable. The values of the coefficients indicate that satisfaction with

friendships and co-workers are the most important variables in the construct created for capturing intrinsic job satisfaction.

TABLE 15

INTRINSIC JOB SATISFACTION VARIABLES

Variable	FSCORE Coeff.
Personal Freedom (O109105A)	.274
Acquaintances/Friendships (O109105B)	.374
Work Group/Co-Workers (O109105C)	.362
Opportunity to Serve One's Country (O109105I)	.252
Promotion Opportunities (O109105K)	.261

Source: Author

A factor can be expressed as a linear combination of the original variables. So, for each individual k, his score for the factor j, is given below:

$$F_{jk} = \sum_{i=1}^{p} W_{ji} (X_{ik}) \qquad (1)$$

where:

X_{ik} is the standardized value of the i^{th} variable in factor j for individual k.

W_{ji} is the factor score coefficient for factor j and the i^{th} variable.

The SPSSX program determines these factor scores and allows them to be utilized in regression analysis. [Norusis, 1985]

b. Extrinsic Job Satisfaction

The variables selected for this sub-category consisted of responses to survey questions which addressed the level of satisfaction with the more tangible aspects of the respondents' military jobs. Table 16 lists these variables and their respective FSCORE coefficients. The factor program extracted one factor, which explained 49.7% of the variation in the data. The coefficients indicate that happiness with job content, job context, and job training/in-service education were all of nearly the same relative importance, while satisfaction with the level of pay and allowances was less than half as important as any one of the other three variables.

TABLE 16

EXTRINSIC JOB SATISFACTION VARIABLES

Variable	FSCORE Coeff.
Pay and allowances (O109105E)	.190
Current Job (content) (O109105J)	.401
Job Training/In Service Education (O109105L)	.373
Working/Environmental Conditions (context) (O109105N)	.409

Source: Author

c. Satisfaction With Current Location

This sub-category addressed responses to questions which investigated respondents' feelings about numerous aspects of the areas where they lived. Table 17 lists the variables which were subjected to factor analysis and their respective FSCORE coefficients. Two factors were calculated, which accounted for 47.2 percent of the variation in the data.

TABLE 17

SATISFACTION WITH CURRENT LOCATION VARIABLES

Variable	FSCORE Coeff. Fac 1	Fac 2
Availability/satisfaction with medical care (MEDICAL)	.089	-.036
Climate (O20E19A)	.408	-.071
Distance to population center (O20E19B)	.425	.027
Cost of living (O20E19C)	-.122	-.098
Recreational facilities (O20E19H)	.361	.073
Attitude of locals toward military families (O20E19I)	.071	.258
Degree to which crime is a problem (O21E20C)	-.082	.503
Degree to which racial tension is a problem (O21E20D)	.026	.556

Source: Author

For factor 1, satisfaction with climate, recreation facilities, and distance to the nearest population center are the most important. The most highly-weighted variables in factor 2 are feelings about the attitudes of locals toward military families, and the degree to which crime and racial tension are problems.

d. Satisfaction With Programs and Services at Current Location

The variables in this sub-category are based on responses to survey questions which addressed the level of satisfaction with programs and services available to the servicemember and his family, if applicable. Table 18 lists these variables and their respective FSCORE coefficients.

Two factors were extracted by the factor program, which, together, accounted for 59.9 percent of the variability in the data. However, only the first factor was used because the second accounted for a relatively small portion of the 59.9 percent. The variables with the highest weights are satisfaction with marriage/family counseling services, youth/adolescent programs, and spouse employment services.

e. Pay/Retirement Benefits Constructed Variable

Finally, a variable was constructed which combined responses to questions which asked respondents' feelings about the statements, "future retirement benefits will decline," and "future pay and benefits will not keep up

TABLE 18

SATISFACTION WITH PROGRAMS AND SERVICES VARIABLES

Variable	FSCORE Coeff.
Family support center (O89E85AA)	-.168
Marriage/family counseling (O89E85CC)	.238
Chaplain services/religious opportunities (O89E85DD)	-.141
Youth/adolescent programs (O89E85FF)	.253
Child care services (O89E85GG)	.199
Financial counseling (O89E85HH)	.183
Services for families during separation (O89E85LL)	.154
Spouse employment services (O89E85NN)	.204
Recreational programs (O89E85OO)	-.186
Legal assistance (O89E85SS)	-.076

Source: Author

with inflation." Named "FUTURBEN," this variable is the average of the responses to the two questions.

B. PRELIMINARY ANALYSIS

Following the selection of the nineteen candidate variables discussed in the previous section, an ordinary least squares (OLS) regression was run to gain some insight into the relative importance of the variables, and bivariate correlation coefficients were compared to check for multicollinearity. With sufficient multicollinearity, the

interrelationships between the independent variables can often mask their true individual effects on the dependent variable. This analysis reduced to fifteen, the variables to be used in the final model. The process employed for this purpose is described below.

1. All of the candidate variables in the biodemographic category were retained in the final model, either because they were statistically significant, or because specific information regarding those items was desired.

2. The tenure/time-related variables were reduced to length of service (LOS) and amount of sea duty. Paygrade was eliminated because of multicollinearity with LOS.

3. The perception of external job opportunities category was maintained as the service member's perceived probability of finding a good civilian job if he left the service now.

4. In the family financial resources category, neither total family income or spouse's total income were statistically significant in the initial OLS regression. Both of these were eliminated from the model, and in their place, a construct representing total military pay (MILPAY) was substituted. This construct was formulated by adding taxable military income (WAGES), basic allowance for subsistence (BAS), basic allowance for quarters (BAQ), and variables housing allowance (VHA).

5. The cognitive/affective category provided a significant challenge in variable reduction. The factors generated in the factor analysis procedure to represent satisfaction with Navy programs such as youth programs and family separation counseling, and satisfaction with various aspects of the current location, were statistically insignificant and were dropped. A composite factor assessing satisfaction with family-related concerns was then substituted. The variables included in this factor, and their respective FSCORE coefficients are shown in Table 19. Also dropped due to insignificance and multicollinearity were the construct, FUTURBEN, satisfaction with current retirement benefits, and satisfaction with current pay and allowances. Because this researcher

feels it is important to address the areas of satisfaction with pay and retirement, the two variables comprising FUTURBEN and the two assessing satisfaction with current pay and retirement were combined by factor analysis into a composite index called PAYRETR. The variable which measured satisfaction with post-service educational benefits was not significant, and was also eliminated.

TABLE 19

SATISFACTION WITH FAMILY CONCERNS VARIABLES

Variable	FSCORE Coeff.
Assignment Stability	.295
Family Environment	.290
PCS Moves	.259
Job Security	.239
Medical Care	.248

Source: Author

Thus, the variables remaining in the cognitive/affective category are the four factors assessing satisfaction with pay and retirement benefits, family-related concerns, and extrinsic and intrinsic characteristics of the military job.

C. FINAL MODEL

The variables remaining after the preliminary analysis are those which will be used in the final regression model. Table 20 summarizes these variables.

1. Model Specification

The logit model specification, based on the cumulative logistic probability function, was selected for

TABLE 20

VARIABLES IN THE FINAL MODEL

Length of Service (O6E6)
SUB
PILOT
NFO
OCS
ROTC
AOCS
Number of Dependents (DEPENDNT)
Number of Months Sea Duty (017E16)
Military Pay (MILPAY)
Probability of Finding Good Civilian Job (096E92)
Satisfaction with Pay/Retirement (PAYRETR1)
Satisfaction with Family Factors (FAMSAT1)
Satisfaction with Extrinsic Job Factors (EXTSAT1)
Satisfaction with Intrinsic Job Factors (INTSAT1)

Source: Author

two reasons. First, this model will provide information on the probability that a given individual will decide to stay past his initial obligation (short term), or past the twenty-year point (long term), given the values of the selected independent variables. Second, the plot of standardized residuals from the preliminary nineteen-variable OLS regression produced the flat S-curve normally indicative of the cumulative logistic probability function. Because both short and long term career orientation are being addressed, separate logit models using the

same independent variables were estimated. For short term orientation, the dependent variable will equal "1" if the individual indicates intentions to stay past his initial obligation (stayer), and "0", otherwise (leaver). Similarly, for long term career orientation, the dependent variable will equal "1" if the individual indicates he will stay beyond twenty years of service (career), and "0", otherwise (nocareer).

It is recognized that, for an individual who intends to stay past twenty years, he must have also indicated an intention to stay past his initial obligation. Respondents who were surveyed for long term career orientation should be only those who indicated a favorable short term orientation. However, due to the reduction in sample size which would result from this method, this researcher chose to treat the short and long term orientation questions in separate, rather than interdependent models.

D. RESULTS

The fifteen-variable logit models were run utilizing the short and long term dependent variables previously discussed. A sequential technique was then employed for each model, in which variables of little statistical significance (ratio of coefficient to standard error of the coefficient less than 1.0) were eliminated. This procedure resulted in reduced short and long term models using the same seven variables. Each had nearly the same measure of

goodness-of-fit as their respective full models. The results of the full (fifteen-variable) and reduced (seven-variable) models, and the rationale for developing the reduced models are discussed next.

1. Full Model Results

Table 21 lists the variables used in the full model and provides the t-ratios for both the short and long term models. There is a definite interaction between LOS and amount of sea duty, as in evidence by their bivariate correlation coefficients (r(LOS, sea duty) = .408). The projected effects of this interaction will be discussed in the section on the reduced model.

The significance values of the dummy variables for warfare specialty area (SUB, PILOT, NFO) are well below the 1.658 cutoff value for the .10 level of significance in both the short and long term models. This means that, holding all other independent variables constant, members of the four warfare areas are similar in both their short and long term orientation. The number of dependents was also not statistically significant in either model. A reason for this may be that these are relatively young officers and nearly half the group reported being single and having no dependents.

OCS as a commissioning source is nearly significant in the short term model. This result indicates that OCS

TABLE 21

FULL MODEL LOGIT RESULTS

variable	short term t-ratio	long term t-ratio
SUB	- .267	-1.312
PILOT	.052	- .132
NFO	.328	- .433
Number of Dependents	.325	1.000
OCS	-1.582	-1.201
ROTC	- .978	-1.236
AOCS	- .821	- .262
Military Pay	.750	- .332
LOS	- .598	+ .381
Amount of Sea Duty	1.244	1.002
Prob. of Good Civ. Job	-2.161**	-2.212**
Pay/Retirement	.774	-1.288
Family Factors	-1.476	-2.214**
Extrinsic Job Factors	-2.770***	-2.622***
Intrinsic Job Factors	- .388	-1.193
Goodness of Fit	57.1%	67.4%
Number of Cases (N)	242	266
Mean probability	.676	.480

* significant at the .10 level
** significant at the .05 level
*** significant at the .01 level

Source: Author

officers are less likely than academy graduates to express positive short term orientation.

The variable which asks respondents the probability of finding a good civilian job if they were to leave the Navy now (096E92) confirms the inverse relationship between

perceived civilian job opportunities and career orientation. This variable is statistically significant at the .05 level for both the short and long term versions of the model.

The level of military pay was not significantly related to either short or long term orientation. This result is consistent with the information from the separation questionnaires and retention surveys discussed in Chapter I. Though military pay increases have not kept up with the rate of inflation in recent years, this survey was conducted in 1985. The substantial across-the-board pay increases of the early 1980s and concomitant increases in special pays, such as sea and flight pay, may have helped to shift the "dissatisfiers" to nonpecuniary factors such as extrinsic job satisfaction and family-related factors.

Length of service (O6E6) was not significant in either version of the model. Although the literature identified tenure as an important factor in explaining turnover, the limited LOS "window" (1.5 to 7.5 years) being considered in this study may preclude this variable from exhibiting its true potential in explaining differences in career orientation.

The amount of sea duty respondents have already completed is not significant in either model. This could be due to the interaction between LOS and amount of sea duty, as discussed earlier.

Satisfaction with pay and allowances, and retirement programs was assessed by conducting factor analysis on the responses to four survey questions which asked the respondents' feelings about current, and projected future pay and retirement benefits. The lack of statistical significance of this variable (PAYRETR1) indicates that neither pay nor retirement benefits are important in predicting differences in short or long term career orientation. This confirms the insignificance of the absolute level of military pay discussed earlier.

The factor constructed to represent the respondents' satisfaction with family-related issues (FAMSAT1), combined assessments of satisfaction with assignment stability, family environment, frequency of permanent change of station (PCS) moves, job security, medical care, and commissary services. This factor was significant only in the long term model, probably because nearly half of the officers in the sample are single and have no dependents. The negative correlation of this, and the other three satisfaction factors with short and long term orientation, occurs due to the coding of the responses to the questions included in these factors. A five-point scale was used, where "1" indicated "very satisfied" and "5" indicated "very dissatisfied". As expected, as officers become more dissatisfied with family-related issues, the less likely they are to stay for twenty or more years.

Intrinsic job satisfaction (INTSAT1) combined responses to questions addressing satisfaction with personal freedom, acquaintances and friendships, work group/co-workers, opportunity to serve one's country, and promotion opportunities. This variable was non-significant in both versions of the model, and confirms expectations that satisfaction with some of the more intangible aspects of military life contributes little to understanding differences in short and long term orientation.

Extrinsic job satisfaction (EXTSAT1) was highly significant in both versions of the model. This factor combined responses to questions addressing satisfaction with the current military job, job training/in-service education, and working/environmental conditions. Based on the full model results, extrinsic job satisfaction is the single most important factor in predicting short or long term career orientation.

The mean probability value indicated for each model is the proportion of respondents expressing either short or long term career orientation. Thus, as Table 21 shows, 67.6 percent of the officers in the sample indicated intentions to stay beyond their current obligations, and 48.0 percent to stay for at least twenty years.

The measure of goodness-of-fit is based on crosstabulations of actual and predicted short and long term orientation. From this information, the percentage of cases

correctly classified as to intent to stay or leave is calculated. The estimated models classified respondents correctly 57.1 percent of the time for short term orientation and 67.4 percent of the time for long term orientation.

2. Reduced Model Results

Table 22 lists the variables retained in the short and long term reduced models, and their respective t-ratios.

TABLE 22

REDUCED MODEL LOGIT RESULTS

variable	short term t-ratio	long term t-ratio
SUB	- .299	-1.768*
Sea Duty (O17E16)	2.017**	1.761*
Prob. of Good Civ. Job (096E92)	-2.177**	-2.070**
Family-related Factors (FAMSAT1)	-1.533	-2.169**
Pay/retirement Factors (PAYRETR1)	.774	-1.226
Extrinsic Job Factors (EXTSAT1)	-2.800***	-2.796***
Intrinsic Job Factors (INTSAT1)	- .651	-1.364
Goodness-of-fit	56.6%	65.0%
Number of Cases (N)	242	266
Mean Probability	.678	.479

* significant at the .10 level
** significant at the .05 level
*** significant at the .01 level

Source: Author

The dummy variable for the submarine warfare specialty (SUB) became significant in the long term reduced model. This means that submariners are less likely to indicate intentions to stay twenty years or more than are officers in the other three groups.

The amount of sea duty became significant in both versions of the model. The probable reason this variable was non-significant for both full models is the interaction (multicollinearity) between sea duty and LOS, which was eliminated from the reduced model. Therefore, sea duty may also have been capturing the effects of LOS and should be interpreted with caution. Both the probability of finding a good civilian job now, and extrinsic job satisfaction have a high, consistently negative relationship in both models, confirming the full model results.

Intrinsic job satisfaction remained non-significant in the short and long term reduced models. This confirms the full model results, and indicates that satisfaction with such areas as friendships, co-workers, and opportunity to serve one's country are not deciding factors (relative to the others in the model) in predicting short or long term career intentions.

Thus, those respondents who have completed more sea duty, those who perceive a low probability of finding a good civilian job if they got out now, and those who are satisfied with the extrinsic aspects of their job are more

likely to indicate positive short and long term career orientation.

The reduced models have nearly equal goodness-of-fit measures and predicted probabilities of positive orientation as the parent fifteen-variable models they were derived from. Therefore, these reduced models will be applied separately to the four operational warfare areas in the sample to see if any important differences in the factors affecting short or long term intentions exist.

3. Operational Warfare Reduced Model Results

Using the respective short and long term reduced models discussed in the previous section, separate logit regressions were run on the respondents in each operational warfare area. The desired comparison in this analysis is how the categories within the operational warfare community differ with respect to the variables which influence career orientation. Table 23 displays the t-ratios of the variables in the short term model for the four warfare areas.

Because of the small sample sizes for each of the warfare areas, the regression results in Table 23 should be interpreted with caution. Additionally, the results will be described using the .01 level of significance as a conservative upper limit to capture effects of the variables being observed, given the potential inconsistencies frequently caused by small sample sizes.

TABLE 23

SHORT TERM WARFARE AREA LOGIT RESULTS

variable	SWO	SUB	PILOT	NFO
Sea Duty	1.047	1.700*	.019	-1.347
Prob. of Good Civ. Job	- .963	.342	-1.965**	- .597
Family-related Factors	- .030	-1.737*	- .334	-.925
Pay/retirement	2.196**	.193	- .902	- .328
Extrinsic Job Satisfaction	-3.026***	- .674	- .350	-2.198**
Intrinsic Job Satisfaction	-1.390	- .770	- .748	1.655*
Goodness-of-fit	58.3%	67.6%	54.7%	54.8%
Number of Cases	61	49	96	36
Mean Probability	.623	.597	.726	.749

* significant at .10 level
** significant at .05 level
*** significant at .01 level

Source: Author

Extrinsic job satisfaction was important in predicting the short term intentions of surface warfare officers, but not other operational warfare URL officers. This result may reflect inherent differences between surface warfare officers and the other three warfare groups in the areas of pay structure, job content, job context, and in-service education. For instance, though military pay (base pay, BAS, BAQ, and VHA) would be the same in all groups for officers of the same grade and LOS, special pays

and incentive bonuses are essentially different between surface, submarine, and aviation communities. Also, surface warfare initial training consists of a relatively short orientation course prior to reporting aboard the first ship. In contrast, submarine and aviation initial training pipelines are much more involved, and can frequently last up to eighteen months or more.

In the short term NFO model, the positive relationship of the intrinsic job satisfaction factor with short term orientation means that as satisfaction decreases, NFOs are more likely to stay beyond their current obligation. This result is counterintuitive, and is probably due to the high degree of correlation between the factors representing intrinsic and extrinsic satisfaction (r(extrinsic,intrinsic) = .464). The short term logit model was rerun for NFOs without the extrinsic satisfaction variable. This method produced the expected negative regression coefficient, which was also significant at the .10 level. The coefficients for the other variables in the NFO model retained their original signs, and none changed significantly in value as a result of excluding the extrinsic satisfaction variable.

The same process was then performed on the other three groups to see if similar results occurred. Though bivariate correlations between the intrinsic and extrinsic satisfaction variables were still relatively high (ranging

from .285 to .387), none of the coefficients changed sign and the patterns of significance remained stable when the regressions were rerun without the extrinsic satisfaction variable.

The goodness-of-fit for the SWO, PILOT, AND NFO models is fairly consistent, ranging from 54.7 to 58.3 percent. For submariners, the model correctly classified respondents with regard to their intention to stay or leave at the end of their current obligation 67.6 percent of the time. Thus, the reduced model is considerably better at predicting the short term orientation of submariners than that of surface warfare officers, pilots, and NFOs.

Table 24 lists t-ratios for the variables in the long term models for the four groups. Extrinsic job satisfaction was also highly significant in this model. Family factors were very important in predicting the long term career orientation of submariners. This is reasonable considering that 49 percent of the officers surveyed reported being married. When assessing the possibility of a twenty year career, these officers will undoubtedly consider factors which affect the family, such as job security and medical care.

Though bivariate correlations between extrinsic and intrinsic job satisfaction variables were similar to those for the short term model, alternate exclusion of each from the long term warfare area models produced no sign changes

TABLE 24

LONG TERM WARFARE AREA LOGIT RESULTS

Variable	SWO	SUB	PILOT	NFO
Sea Duty	2.137**	1.861*	-.068	-.169
Prob. of Good Civ. Job	-1.776*	.119	-1.231	-1.312
Family Factors	-.774	-2.611***	-.394	-2.144**
Pay/retirement	1.484	.027	-2.488**	.583
Extrinsic Job Satisfaction	-3.597***	-1.063	-1.426	-2.047**
Intrinsic Job Satisfaction	-2.437**	.765	-2.166**	-1.113
Goodness of fit	68.5%	78.9%	58.2%	58.2%
Number of Cases	66	52	107	41
Mean Probability	.465	.336	.568	.462

* significant at .10 level
** significant at .05 level
*** significant at .01 level

Source: Author

or significant differences in the values of the regression coefficients.

The long term model correctly classified respondents with respect to long term career orientation 58.2 percent of the time for pilots and NFOs, 68.5 percent of the time for surface warfare officers, and 78.9 percent of the time for submariners. Thus, as in the short term warfare area model, the long term model is substantially better in explaining the long term career orientation of submariners than that of the other three warfare groups.

Again, due to the small sample sizes for each of the warfare areas, the results shown in Table 24 should be interpreted with caution.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

This thesis investigated the factors which influence both the short and long term career orientation of junior URL naval officers, with between eighteen months and seven-and-one-half years active duty. Multivariate logit regression models were estimated utilizing these factors to determine their relative importance in explaining differences in short and long term career intentions of these officers. Six major conclusions may be made from the results of the estimated models:

1. The factors which most influence junior officers in the operational warfare community to stay beyond their initial obligations are the amount of time spent on sea duty, the perceived probability of finding a good civilian job, and satisfaction with extrinsic job factors listed in Table 25.

TABLE 25

VARIABLES IN THE EXTRINSIC JOB SATISFACTION FACTOR

Pay and Allowances
Current Military Job
Job Training/In-service Education
Working/Environmental Conditions

Source: Author

2. The most important factors in predicting whether officers in the operational warfare community will stay in the Navy for twenty or more years are the amount of sea duty, the perceived probability of

finding a good civilian job, satisfaction with extrinsic job factors, warfare specialty area, and satisfaction with family-related factors listed in Table 26.

TABLE 26

VARIABLES IN THE FAMILY SATISFACTION FACTOR

Assignment Stability
Family Environment
PCS Moves
Job Security
Medical Care

Source: Author

Two differences from the short term model are evident. First, submariners are significantly less likely than surface warfare officers to express positive long term orientation. Second, family-related factors become important in the long term model.

3. Results of the separate short term warfare area models indicate that satisfaction with extrinsic job factors has a much greater influence on surface warfare officers than it does on URL officers in the other three warfare groups, in predicting whether these officers will stay beyond their initial obligations.

4. Results of the separate long term warfare area model show that satisfaction with extrinsic job factors for surface warfare officers, and family factors for submariners, have the greatest influence in predicting whether these officers will stay in the Navy for twenty or more years.

5. The initial intention of investigating separate models for each of the warfare specialties was to see whether different factors influenced the career orientation process of each group. The small sample sizes which resulted make it advisable for the conclusions drawn from these models to be treated as preliminary results needing further verification.

6. The results of the short and long term models show some consistency with a number of the reasons for separation and retention presented in Tables 1 and 2 in Chapter I.

   a. The extrinsic variables assessing level of satisfaction with current job content and working conditions are well represented in the reasons for separation (Table 1).

   b. Though the list of retention reasons (Table 2) includes pay and allowances (an extrinsic satisfaction variable), most other items in this list are intrinsic in nature, such as opportunity to serve one's country. These intrinsic factors were not significant in either the short or long term models.

   c. The specific family satisfaction variables found important in the long term model were represented only in the reasons for separation in the form of dissatisfaction with the amount of family separation.

B. RECOMMENDATIONS

The following recommendations are made based on the analysis conducted in Chapter IV and the conclusions derived from that analysis:

1. Apply similar career orientation models to those constructed in this thesis across services to identify similarities in the factors which influence the career orientation of junior combat officers in the Army, Air Force, and Marine Corps.

2. Investigate the applicability of the long term model to naval officers with more than seven years LOS. Of particular interest would be the identification of how the influences of the various satisfaction variables change as length of service increases. Also of interest for such analysis would be an assessment of how the career orientation factors differ in importance between the four operational warfare areas. Sample sizes for the warfare groups may be sufficient to allow statistically sound interpretation of the results due to the larger LOS "window" (seven to twenty years) under consideration.

3. Institute and maintain an ongoing officer survey program to help keep a "finger on the pulse" of the Navy officer corps. Surveys such as the 1985 DOD Survey of Officer and Enlisted Personnel are inherently rich in the types of information which can be of significant value to manpower analysts and policy makers. Results of such surveys, conducted at two to three year intervals, could be used to predict and plan for personnel shortfalls by occupational area, and to broaden the understanding of the reasons underlying naval officer career orientation behavior. Results of analysis of such surveys can provide a useful basis for evaluating current personnel policies and recommending policy changes.

4. Include the career orientation factors listed in Table 27 the appropriate officer separation or retention questionnaires.

TABLE 27

RECOMMENDED ADDITIONS TO OFFICER SEPARATION/RETENTION QUESTIONNAIRES

Frequency of PCS moves
Satisfaction with family environment
Satisfaction with work group/co-workers
Assignment stability
Working/environmental conditions

Source: Author

These items are not specifically addressed on current officer separation or retention questionnaires, and, if added, may provide useful insight into junior officer career orientation behavior.

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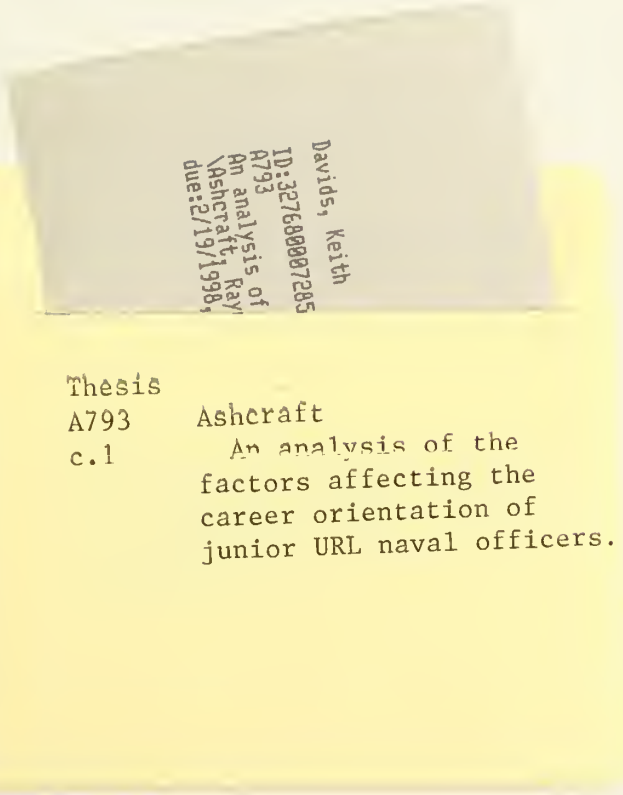

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An analysis of the factors affecting the career orientation of junior URL naval officers.